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Inaugural Essay

On Cynanche Fruticosa

For the degree of Doctor of Medicine
in the University of Pennsylvania

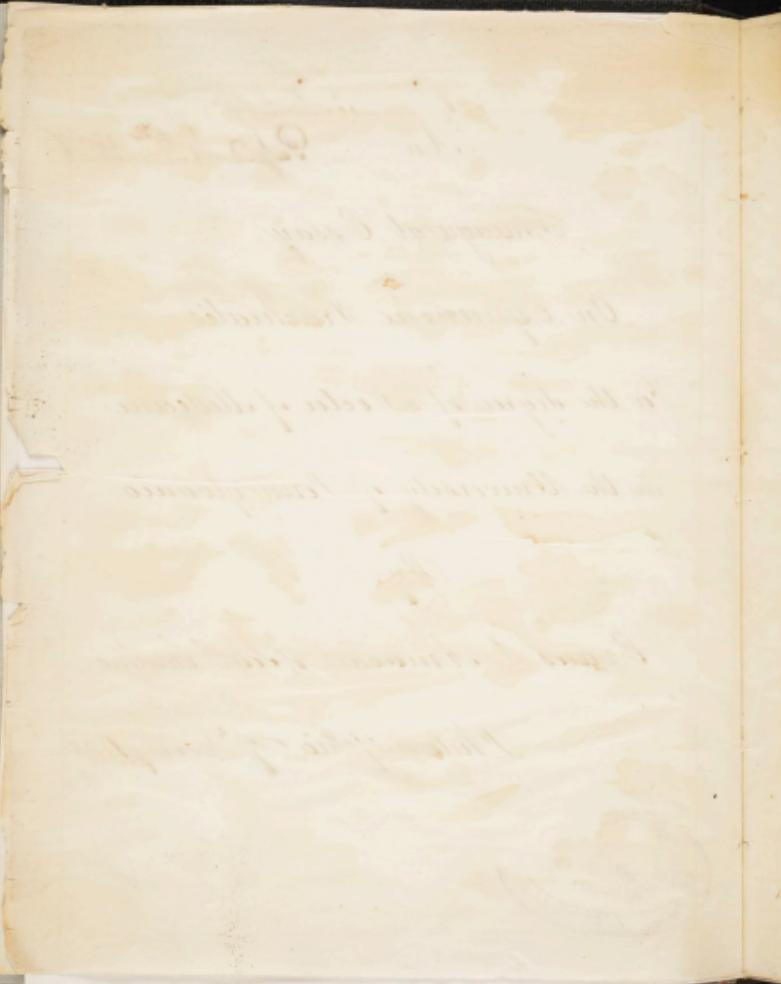
By

Evans L. Smacker offull bardine

Philadelphia, January 1828



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Oryzanche Trachealis

This disease is of comparatively modern origin.

Descriptions of it are indeed to be found in the writings of Decerbaean, Martin Boissie and others yet little appears to have been known of it until noticed by Home of Edinburgh about the middle of the last century, and to him we may generally ascribe the honor of having earliest directed the attention of the medical profession to it as a distinct disease.

It is not essential to the purpose of this essay to inquire whether the cause and nature of Oryzae was known to the ancients or not, as it is now sufficiently ascertained to be of very frequent occurrence and familiar to physicians as well in this as most other countries since the period at which Home made it the subject of his inquiries caused by atmospheric variation and excited by sudden vicissitudes of temperature etc., begins its ravages at an early season. Children, more particularly those from one to three or four years old, are the peculiar

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objects of its attacks. Yet it is not wholly restricted to early life as Cullen and Thomas declare. No age, sex or condition is entirely exempt from its molestation. It not only invades the cradle-to-the-grave, but affects the youth in his manhood and harbors over the decline of silvered age. To the truth of these remarks the experience of many eminent practitioners of our country bears ample testimony.

Depending upon atmospheric distemperature the disease has been supposed to be confined to the sea-coast, and as a cold and moist atmosphere is observed to be the element in which it flourishes the coast is well calculated to favour its production and promote its dissemination. Low marshy places in inland situations afford also a fruitful source of its generation and a wide sphere for its action as is proved by Reed, Currie, Cullen and Thomas.

Concerning its contagiousness medical opinion at this day is pretty well settled and most pathologists concur

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in doctoring it of that formidable property. There are
many however who still maintain that it is contagious.
of these, not the least conspicuous is Gregory of Edinburgh
who believes it always in its malignant form capable
of communicating itself by contagion. But the cases
in which he appears to apprehend this power were probably
complicated with other diseases upon which occupancy sometimes
superceded. This at least seems to be the suspicion of
Chyne who has written ably on the complaint.

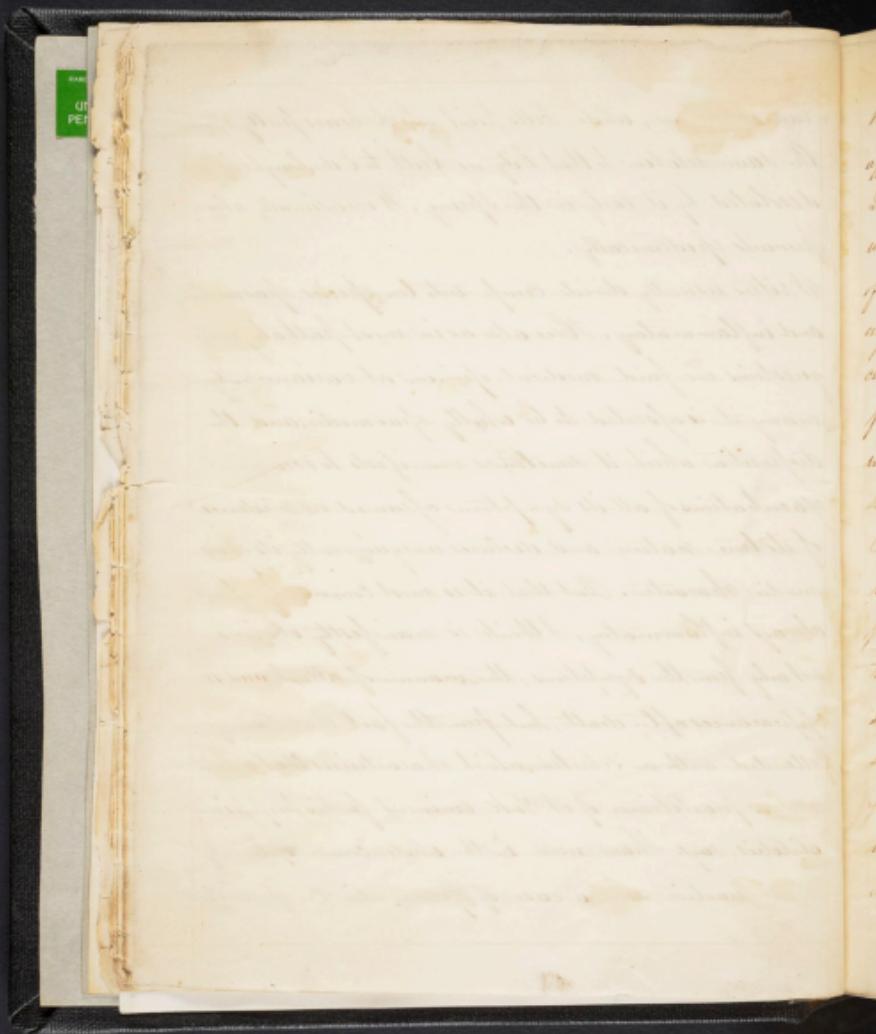
Cough truly inflammatory in its nature and visiting
independent of other diseases, acknowledged to be infectious.
I do not believe myself is ever propagated upon
this principle. Indeed with Dr Hosack I would as soon
suspect phrenitis or inflammation of the pleura.

Some places appear peculiarly liable to this disease.
In Edinburgh cough is scarcely known, while in the
neighbourhood of Leith, but a few miles distant, it prevails
to such an extent that the inhabitants can with difficulty
raise their children: in Battersea also it is of

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rain occurrence, while Hills point which bears pretty much
the same relation to that City, as Leith to Edinburgh, is
desolated by it early in the Spring. It occasionally also
prevails epidemically.

Writers usually divide Cough into two species, spasmodic
and inflammatory. Here also as in most pathological
questions we find medical opinion at variance. By
many it is asserted to be wholly spasmodic, and the
disposition which it sometimes manifests to occasional
recrudescences of all its symptoms assumed as evidence
of its true nature and declares unequivocally its spas-
modic character. But that it is most commonly if not
always inflammatory, I think is manifestly obvious,
not only from the symptoms, the manner of attack and the
appearances after death, but from the fact that it is often
attended with a secretion which characterizes that affection
and a practitioner of as high eminence for his professional
abilities, says, I have never in the whole course of twenty
years, practised down a case of spasmodic Cough, with



have I seen a case that was not followed by a spasmodic affection of the part; With this Dr D'oces approves also complete. Dr Chapman however admits the distinction and observes that when the attack is sudden and violent it partakes more of a fit of spasms and on the contrary when it comes on gradually as an original or a consequence of disease slowly developing itself it is certainly of an inflammatory character. He considers it in the first instance inflammatory or spasmodic, and as eventuating in a genuine peri-pneumonia. His opinion Blayne and Estlin seem also to have entertained.

Dr Cullen and Bard except is said to be symptomatic of many other diseases and according to Rush measles, small pox, febrile apoplexy, catarrh and pneumonia inflammation have all given rise to it. Fissier relates two cases that developed ulcerated sore throat. Blayne and French have seen it attend scrofulosis and Sayre witnessed it from yellow fever. Caldwell believes it always original and never produced by any irregularities in synanche or maligia or tertiaris. Certainly it may follow as a sequel a tertian as

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a concurrent any of the diseases enumerated, but cannot be considered as a symptom of either since they usually exist independent of each other.

The tender and delicate constitution of children is most generally the subject of this complaint, for the system appears to lose the susceptibility to it in maturity. The younger the child the more liable will it be to the affection and when once attacked becomes more obnoxious to it from the slightest causes. Catarrhal affections full robust habits and a cold, damp atmosphere also predispose to it, it therefore occurs most frequently in the winter and spring seasons when the weather is moist and austere, and is seldom known in the summer. It is also observed to be more common in cold and temperate climates than between the tropics.

Little else seems necessary to excite it at once into action than an exposure to cold particularly cold and windy weather.

The proximate cause consists in an inflammation of the mucous membrane lining the trachea.

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The disease is not confined to the upper part of the Throat as Buller indicates, who in his nosology defines it to be an inflammation of the mucous membrane & contiguous muscles of that part attended with fever &c, but it involves the whole respiratory organ extending itself into the bronchia and even to the surfaces of the lungs as post mortem examinations demonstrate.

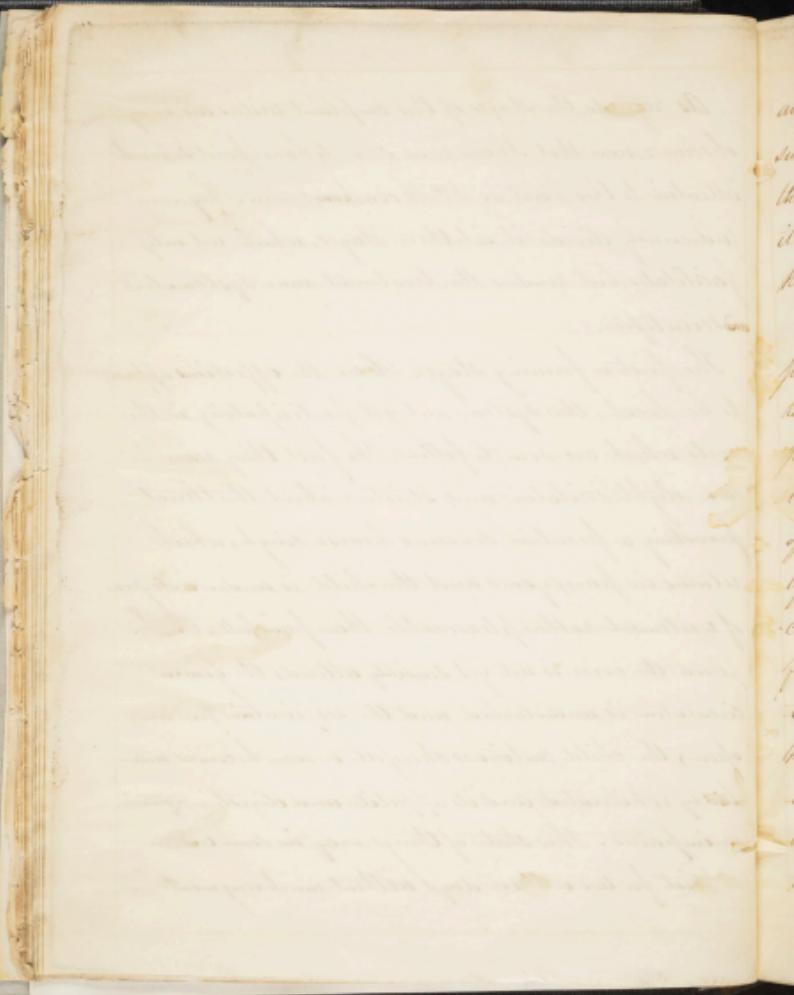
The manner and time of its attacks are various: sometimes it steals into the system so insidiously as scarcely to be remarked by any complaints of the child. Hane, says Gregory, saw a child taking its food and running about while the disease was, making rapid advances. In other cases it comes in so suddenly and violently that the patient is instantaneously seized with a great difficulty of breathing and a shrill barking noise. Most generally however I believe it attacks early in the morning or late at night while the child is in bed without any premonition, & it may be preceded by indisposition similar to that observed in common colds.

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As regards the stages of this complaint writers are very obscure; none that I have read seem to have paid so much attention to this point as Dr. H. C. and Dr. C. They very judiciously divide it into three stages, which not only facilitates but renders the treatment more systematic and scientific.

The first or forming stage. Here the affection appears to be local, the system not yet participating in the evils which are soon to follow. The first thing remarked is a slight irritation and stricture about the throat provoking a peculiar tenacious hoarse cough, which retains in paroxysms and the child is under a degree of torment rather pleasurable than painfull. At this period the voice is not yet sensibly altered; the general circulation is undisturbed and the respiration free and open, the child continues cheerful a soon becomes markedly exhilarated and its appetite and digestion remain unimpaired. This state of things may in some instances subsist for two or three days without much augmentation

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and is very deceptive making the practitioner a parent
swept nothing more than an attack of common catarrh, could
the disease long maturing suddenly and violently develop
itself: in others the formation is so short and rapid as
hardly to be recognized.

Dr Seavers thinks he has observed in the forming stage,
particularly in the slow and insidious attacks, the hands
to be more than usually cool and the face unnaturally
pale resembling in some degree the cold stage of an ini-
tiated Mal, the patient himself however feels no sensation
of cold. But where the attack is sudden this condition is
by no means so conspicuous or perhaps not at all per-
ceptible. During the existence of this stage the secretions
from the nose and mouth are much diminished & to-
tally suppressed and continue so throughout unless a
happy solution is effected. Hence the troublesome voice-
ing and distressing thirst which prevail. The cough
is short and for the most part dry, but occasionally
it is accompanied with an expectoration of small quantities

of a thin whitish mucus. On examining the internal organs nothing remarkable is presented except that the lungs are rather more injected than natural. After a continuance of the above symptoms for a longer or shorter time a change takes place in all of them, while others still more formidable are superadded indicating the second or inflammatory stage.

In this stage the constitution is implicated and the whole system feels the morbid impression. Here the voice is observed to be affected by the hoarseness; the cough also is now more frequent and the paroxysms larger attended to with a more acute sound than was noticed in the first stage: every inspiration too is accompanied, with a more uniform wheezing and greater shrillness than was perceived in the first. A degree of exhaustion with an increase of the difficulty of respiration succeeds every effort to cough: the face becomes suffused, which however partially subsides after the exertion, as the pulse languishes.

In most cases the circulation is greatly accelerated exciting much febrile commotion: but in some there is

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little vascular exstent; when this latter obtains, the face is seldom flushed and the extremities are rather cooler than natural. The child shews considerable disposition to sleep and declines into frequent but disturbed slumbers from which he is suddenly roused by a most violent fit of coughing and increased oppression. He cries and struggles to raise himself from the bed; every symptom soon becomes aggravated and if not arrested advances rapidly to the third or Congestive stage.

The respiration is now rapid and no interval occurs and as soon as the parts become distended with blood an effusion of a thick tenacious fluid into the trachea takes place; which increases still farther the oppression and difficulty of breathing. The cough is now more frequent in its recurrence and more permanent in duration, terminating sometimes in a discharge of a puriform malleous pieces of coagulated lymph, resembling membranes, but which affords no alleviation. The child from this time becomes extremely restless, throws himself from

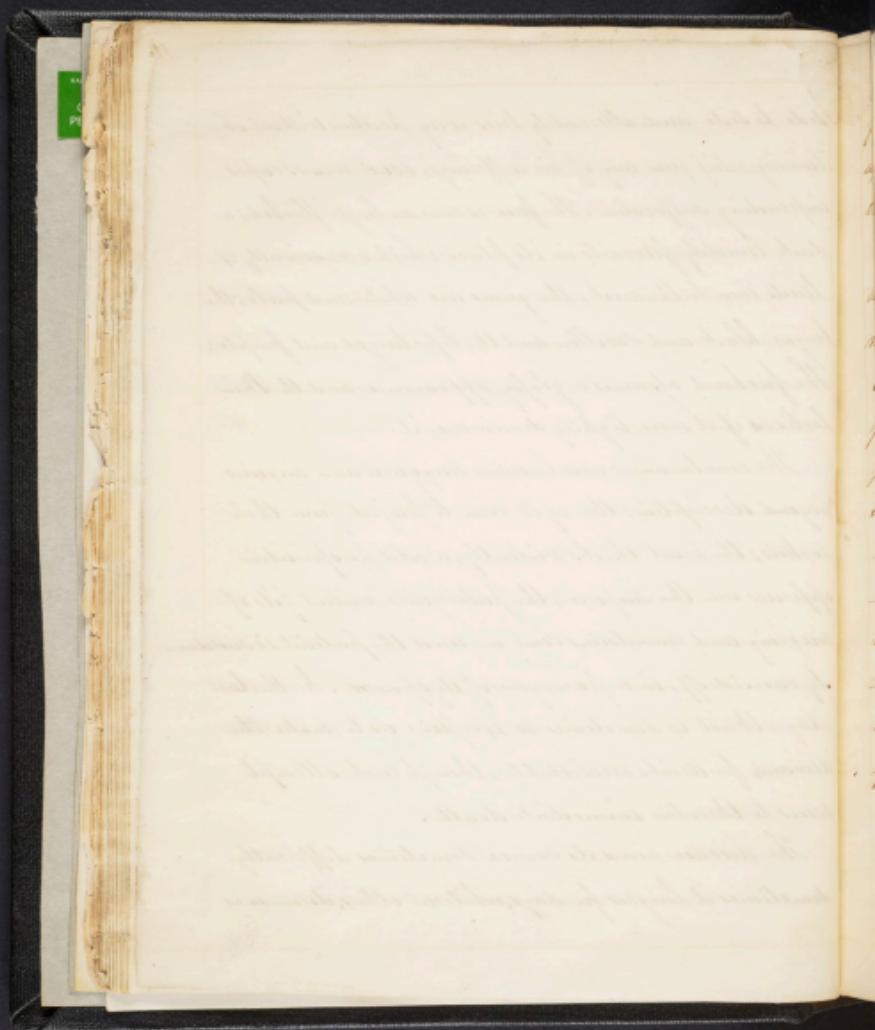
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side to side and alternately bits every position without obtaining relief from any of his sufferings, save unconscious insipid suffocation. The face is now no longer flushed; a dark lividity prevails in its place, which occasionally extends even to the neck; the gums are white and pale, the tongue black and swollen and the lips turgid and purple. The forehead assumes a glossy appearance and the skin looks as if it were lightly drawn over it. —

The countenance now becomes haggard and anxious beyond description; the eyes seem to project from their sockets; the heart thuds violently, a cold perspiration appears over the surface, the pulse fails, violent fits of coughing and convulsions come on and the patient is suddenly carried off, in a paroxysm of dyspnoea. In this last stage thirst is sometimes so excessive as to make the demands for drinks irresistible, though each attempt seems to threaten immediate death.

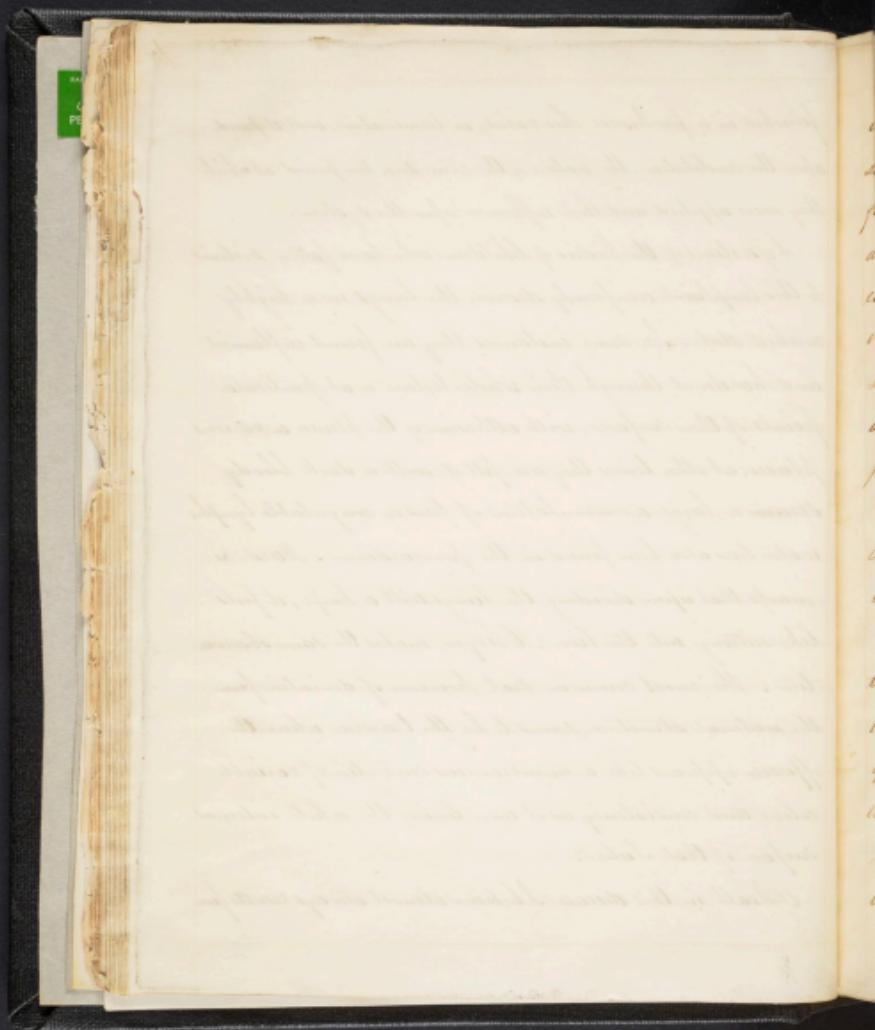
The disease runs its course sometimes differently: sometimes it lingers for days, while at others, discourse is



finished in a few hours: This variety in termination, will depend upon the constitution, the nature of the remedy, the period at which they were applied and their influence upon the system.

Dissections of the bodies of children who have fallen victims to this complaint uniformly discover the lungs in a highly morbid state. In some instances they are found inflamed and hardened through their whole texture or at particular points of their surfaces, with adhesions of the pleura in various places: at other times they are filled with a dark bloody serum a large accumulation of pus or coagulable lymph; water has also been found in the pericardium. Bard remarks that upon dividing the lungs with a knife, it feels like cutting into the liver. Steyne makes the same observation. The most common seat, however of deviation from the natural structure, seems to be the trachea where the affection appears like a membranous excrescence of variable colour and consistency as it were lining the whole internal surface of that tube.

Death in this disease I believe almost always results from



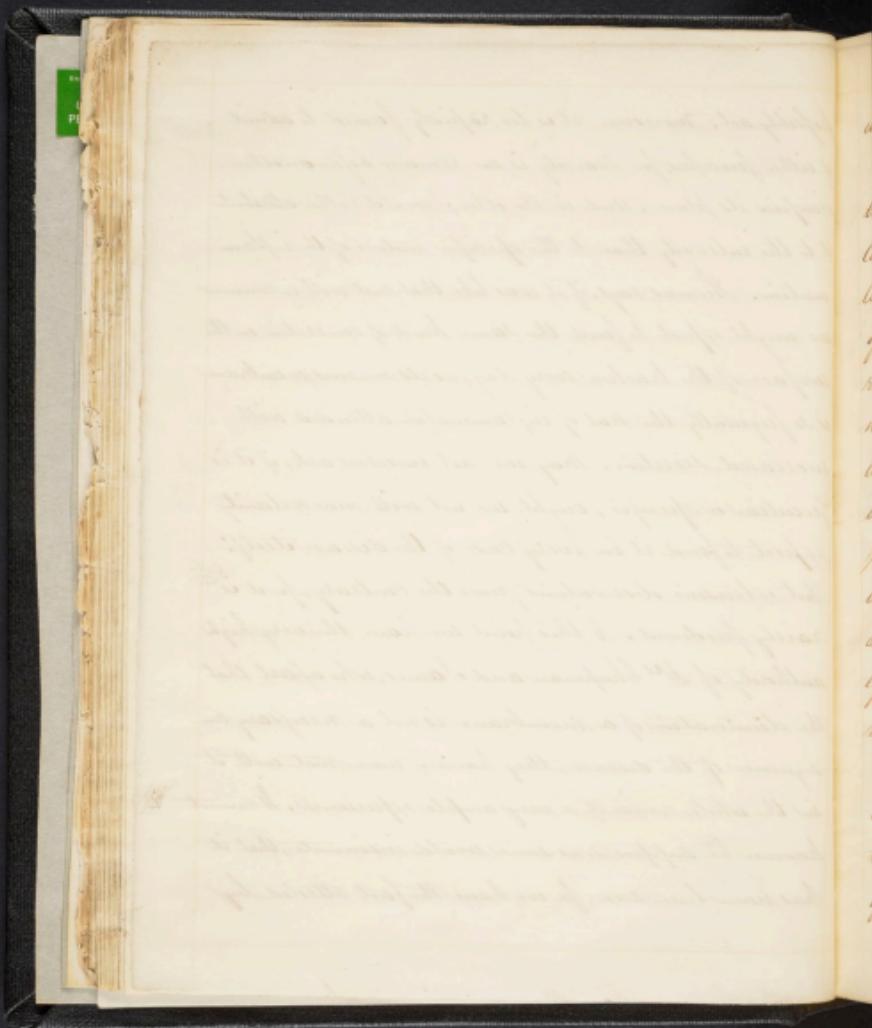
a mechanical obstruction and not from spasms as is generally supposed: at least dissections prove that obstruction is the most frequent cause. Indeed the very organization of the trachea and the disposition of its muscles, so completely antagonizing each other, seem to preclude the possibility of a total occlusion of its passage by spasms. Doubtless in the latter stages of the complaint, when effusion has taken place and violent exertions are made to cough, spasms may and probably do assist in hastening the fatal event.

What constitutes the great peculiarity of cough is its constant tendency to the formation of a membrane which is perpetually endangering suffocation.

As regards the nature of this membrane, some declare that it is nothing more than inspissated mucus; others that it is a specific secretion from the epithelium. Neither of which I believe to be correct. It cannot be formed by evaporation and absorption of the finer parts of the common mucous secretion in the one case, for no similar production is dysenteric where the one is suspended and the other cannot



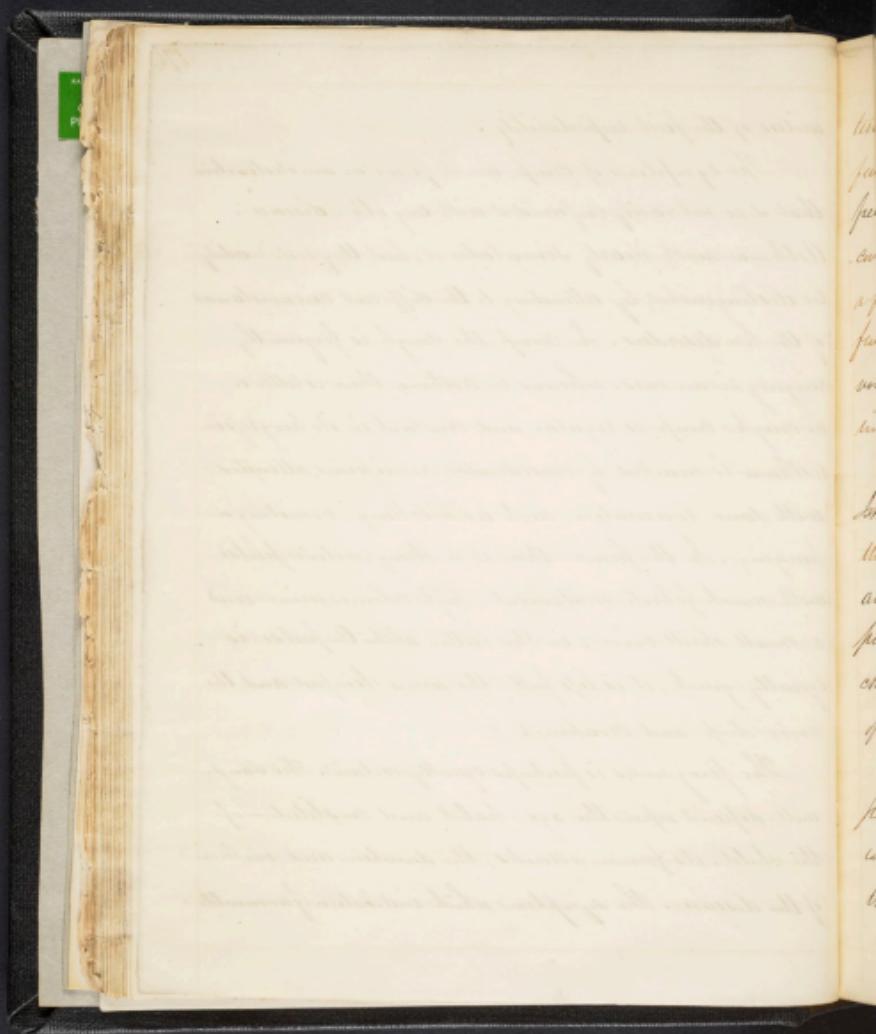
properly act; moreover it is too rapidly formed to admit
of either process for scarcely is one removed before another
occupies its place. And in the other, I would rather attribute
it to the intensity than to the specific nature of the inflam-
mation. Thomas says, if it was like that not with uncommon
we might expect to find the same kind of concretion on the
surface of the trachea every day, as its mucous membrane
is so frequently the seat of inflammation, attended with
increased secretion. May we not justly ask, if it is
peculiar a specific, ought we not with more certainty
expect to find it in every case of the disease itself?
But splendid observations prove the contrary, for it is
rarely produced. To this point we have the very high
authority of Dr Chapman and James, who assert that
the elimination of a membrane is not a necessary con-
sequence of the disease, they having never met with it
in the whole course of a very ample experience. It cannot
however be supposed, as some would intimate, that it
has never been seen, for we have the fact attested by



wishes of the first respirability.

The symptoms of Croup are so peculiar and distinctive that it is not easily confounded with any other disease. Asthma most nearly simulates it, but they will readily be distinguished by attending to the different circumstances of the two disorders. In Croup the cough is frequently ringing between ears, whereas in Asthma there is little or no cough: Croup is regular and constant in its progression. Asthma is marked by considerable remissions, attended with some evacuation, such as belching, vomiting or purging. In the former there is a strong, active pulse with much febrile excitement, high colored veins and a small shrill voice: in the latter altho the pulse is equally quick, it is less full, the urine stimp'd and the voice deep and breaking.

The prognosis is perhaps equally certain. The danger will depend upon the age, habit and constitution of the child, its former attacks, the duration and violence of the disease. The symptoms which indicate a favourable



termination, are a subsidence of the inflammation and fever, relaxation of the spasms, relief to the oppressed free exhalation, moist skin and the voice gradually recovering its natural tone. On the contrary those which denote a fatal tendency are great difficulty of breathing, high fever, frequent and violent fits of coughing, dry skin, the voice becoming more shrill and the pulse irregular and intermitting.

On the treatment to be adopted for the case of croup I shall not descend into details: but will briefly describe that mode which has been found to be the most successful and generally pursued by the most learned and experienced practitioners; every writer differing about the nature or character of the complaint, their practice of course partakes of the same contrariety.

Croup is justly esteemed a dangerous disease and perhaps in the whole catalogue of human afflictions there is none which wears a more formidable aspect or whose treatment has hitherto been more feeble and undetermined.

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from the erroneous notions entertained of its pathology.

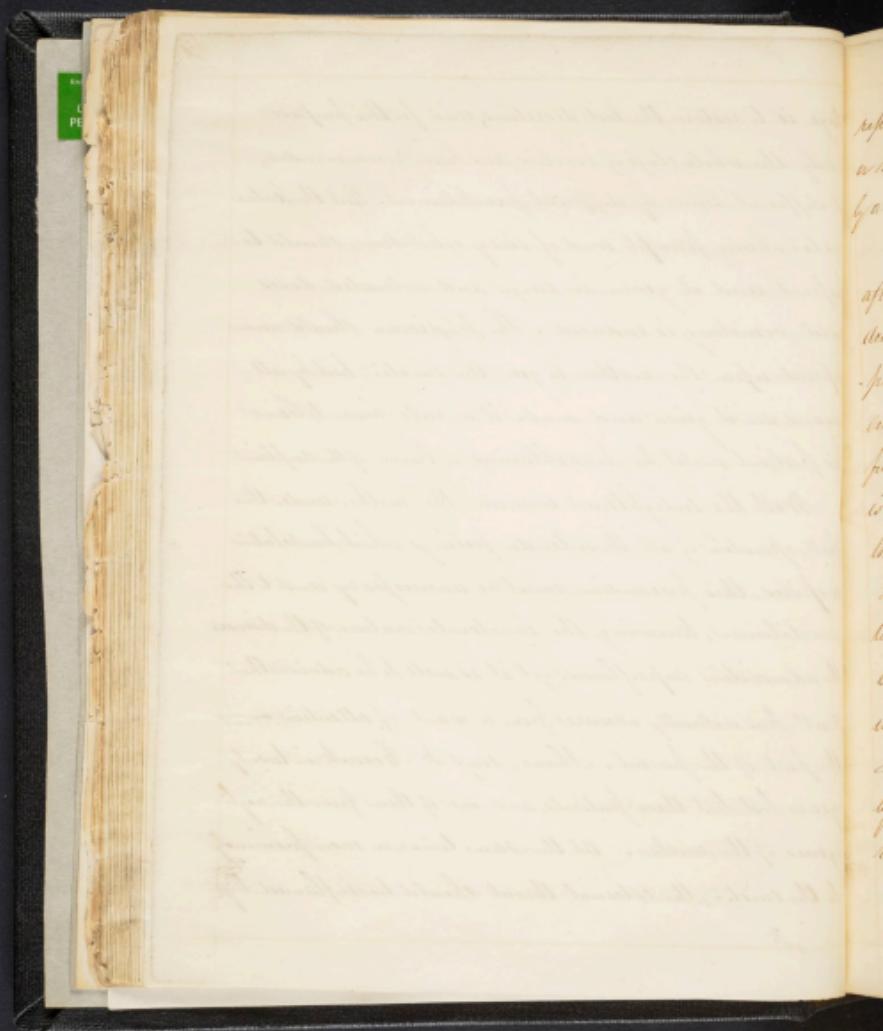
Highly inflammatory in its nature, located too in an organ minimally vital, it is alarming, and calls for the most prompt and energetic measures.

Cullen very properly remarks that the whole iatrophic plan is necessary in the management of croup; and Dr. Nosack not unjustly observes that Hamilton has betrayed much ignorance in recommending salves only. After Remond's too concession, it to be spasmodic, advises little else than blisters.

From what has been said it will be perceived that the first stage is our time for action, for recoveries seldom occur after effusion into the trachea has taken place; even if by the efforts of nature or art the child passes through the third stage, convalescence is so tedious and relapses occur so readily from the slightest causes as to make final restoration to health doubtful. This stage seldom lasts long, though Dr. Nosack has seen patients longer in it for three or four days. The indications in each

Stay is to restore the lost secretion, and for this purpose
nearly the whole class of emetics has been recommended,
at different times by different practitioners. But the Senna
emetic, being prompt and of easy exhibition, should be
preferred, and it given in large and reiterated doses
until vomiting is induced. The physician should never
depend upon the mother to give the emetic; but by all
means see it given and make it a rule never to leave
his patient until he has obtained a cure of the complaint.

With the enlightened woman, the mother under the
full operation of all those tender feelings which her relation
inspires, this precaution must be unnecessary and to the
practitioner, knowing the inveterate nature of the disease,
the admonition superfluous; yet it is well to be advised that
death has actually occurred from a want of attention on—
the part of the parent. I have, says Dr. Rosack, in twenty
years lost but three patients, and one of them from the neglect
of the mother. At the same time, a woman previously
to the emetic, the external throat should be inflamed by



repeated applications of the spirits of turpentine, hartshorn & mustard and vinegar: care however should be taken not to apply a too暴力 powerful irritation, to produce suppuration.

Some profuse expectorant doses of the tinctures at first and afterwards to repeat every six hours if the urgency of the symptoms demand it. But as the good effects of Medicines in this complaint appears to be proportioned to the promptness and energy of their impressions on the system. I should advise full vomiting at once. The relief obtained from vomiting is immense, from the discharge of large quantities of a thick,ropy mucus and the breaking out of suppuration.

The bowels, which will generally be found costive, should be opened by some brisk purgative such as castor oil, calomel alone or in combination with Sibyllaria jatroph with Stimulating enemas immediately after the treatment. These by emptying the alimentary canal of its contents and by their irritation on the Stomach, assist very much the operation of the other remedies.

These measures should be promptly employed and steadily

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persisted in, and if the medicines act with their wonted
kindness we shall not fail to control the disease and
prevent its full development. In corroboration of the general
intuition the antiphlogistic regimen should be rigidly
observed: the diet should consist simply of barley water
flat sted tea, warm lemonade or molasses whey; the
patient confined to an atmosphere of a moderate
temperature and most carefully guarded against
exposure to cold, a draught of air: the throat should
be protected by a piece of flannel or some other warm
envelope, after the rubefacients are laid aside. With
this treatment Dr Chapman says the attack must be
very obstinate if it does not yield.

In the farning stage Rush recommends antimonials
wine, smectic tartar, ipecac and oysmal of squills and
says they rarely fail to arrest its progress. The tartar
smectic however seems alone to merit our confidence:
the wine and squills are too feeble and doubtful: the
first six hours is our precious time and should not be

spent in idly temporising. Should the disease resist the treatment we have inculcated and continue to increase; or should unfortunately the physician not have been called until this first stage has passed, we shall have the second, which will require other and more painful means.

Symptoms of the second stage existing, we should resort immediately to venesection. To be useful the blood should be taken suddenly, plenariae, from a large orifice in considerable quantity, even ad deliquium animi, to overcome the high arterial action and divert the flow of blood from the part. With this view the external jugular vein or a vein at the arm may be opened, or where there is any difficulty in effecting this, from the depth of the veins, we may with ease and equal utility, puncture those on the back of the hand, putting the hand for a few minutes in warm water previously to the operation. The propriety of large bleedings has been much controverted by practitioners, though perhaps not upon sufficient ground. It can doubt-

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the impatience efficacy, and necessity of the lancet in this case; its use then must be regulated by the discretion of the physician and the severity of the symptoms. Dr. Hotchek is more partial to small and frequent bleedings, but at the same time observes we should let the effects of our lancet be seen in the pallor of the face and nausea of the Stomach. Blood may also be detracted locally by means of cups; the back appears to be the most eligible situation for their application not only from the intimate connection between the parts, but the danger of suffocation when fixed near the throat.

Dr. Levees prescribes the Employment of leeches, so peculiarly adapted to children according to Good Gray and others, as they do harm by exposure of the parts to cold, the slowness of the operation and increasing the child's sufferings during abstraction. By some, peristole has been depreciated and laudanum recommended as likely to give as prompt & permanent relief as any other means; than which nothing can be more futile, unscientific and propositious.

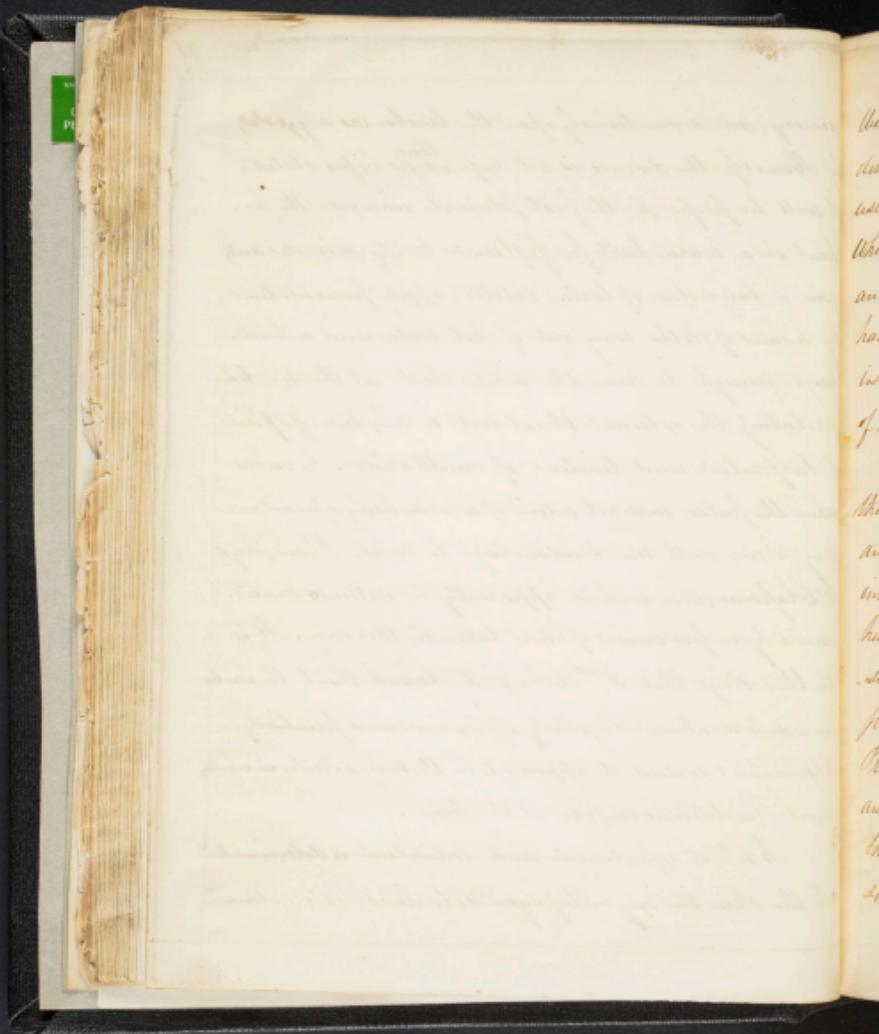
Directly after bleeding a large dose of emetic tartar should be administered and a blister, sufficient to bleed from canker applied to the throat, if the difficulty of breathing continues and the cough is not loose; and such a quantity of calomel given as will procure a copious evacuation from the bowels. True purging seems to be unnecessary and sometimes even injurious, for it rapidly diminishes the strength of the patient without at the same time weakening the disease, though there is evident utility in having the alimentary canal freely opened. If the child is not yet relieved and the symptoms appear to augment, the bleeding, blisters with tepid baths, emetics and warm fomentations to the parts should be repeated again and again, so long as they are violent. In the meantime calomel and tartar emetic in James powdered in proper doses should be exhibited every two hours, until the cough ceases. The greater the disposition the disease has to run a rapid course, or the more sudden and violent the attacks, the greater will be the chance of success from the use of purgatives.

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Where the other Medicines fail, the sassafras in two
spoonful doses frequently repeated, as advised by Dr. Acheson,
may be used, and here it is said to display its highest power,
restraining the disease promptly and releasing especially
the feeling of oppression. Dr. Stearns considers croup to
arise from a torpor of the absorbtion; in this case he
has symptoms of the most violent inflammation, he
gives calomel but makes it answer for all other medicines
by giving immense doses of it. If the disease does not
abate soon after the adoption of this stage under the
treatment just detailed, it passes on to the third, where
effusion from the inflamed vessels is the consequence.
At this time there is little hope of recovery, since our man
seldom with certainty removes the existing obstruction and
so allays the action of the vessels as to prevent new accumula-
tions; yet we should not wholly despair. In this stage we
must not fearlessly wield the lancet as Dr. Ditch of New-
bern did, for the system, already prostrated by the
violence of the disease, may sink under the operation, beyond

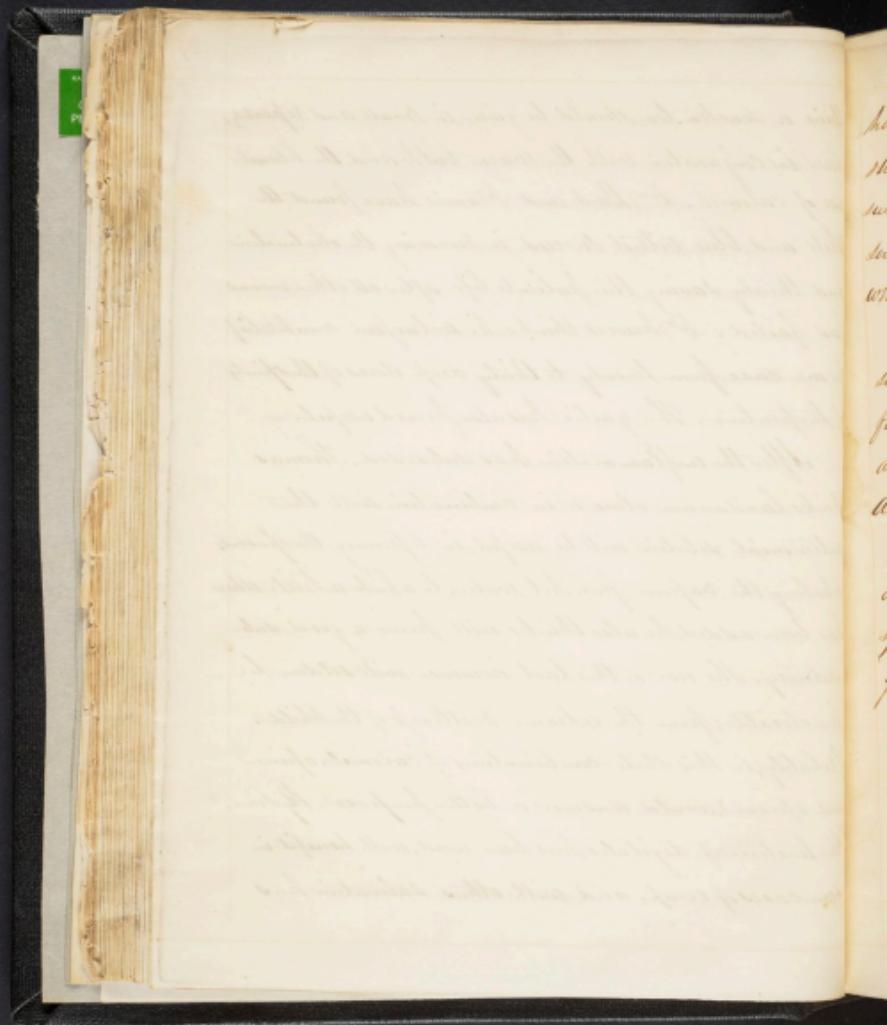
recovery, more cautiously open the trachea as suggested by Horne, for the disease is not confined, ^{thus} as before stated. It will be preferable the first place, to immerse the patient in a warm bath for fifteen or twenty minutes, and give a large dose of tartar emetic; apply fumigations by means of cloths rung out of hot water and a bladder large enough to cover the whole chest, at the same time irritating the glottal throat with a mixture of spirits of turpentine and tincture of cantharides. In cases when the pulse will not admit of a vein being opened, one may recur with much advantage to cups - I have, says Dr Chapman, seen a child apparently in articulo mortis saved by a few ounces of blood taken in this way. It is in this stage that Dr Harken and Horne think the blisters, as advised above, singularly efficacious and peculiarly applicable; indeed it appears to be the only article in which most practitioners confide at this time.

To a first expectation and maintain a determination to the skin the oyle of squills, tartar emetic, antimony



Unin or Sarsaparilla tea should be given in small and repeated doses in conjunction with the warm bath and the liberal use of calomel. Dr. Read and Francis have found the white and blue vitriol succeed in removing the obstruction and thereby saving the patient's life, after all other means had failed. Dr. Dewees thinks the most useful much relief in one case from twenty to thirty drop doses of the fumigations of turpentine. The garlic has also proved useful. —

After the inflammation has subsided, Thomas thinks laudanum alone or in combination with the antimonial solution will be useful in lessening the spasms; inhaling the vapour from hot water, to which a little ether has been added, he also thinks well prove a good subsidiary. The use of this last however will seldom be practicable from the extreme restlessness of the child. Probably, in this state combinations of calomel, opium and ipecac, would answer a better purpose. At some, the fumigation of digitalis has been used, with benefit in some cases of croup, and with others, salivation has



has proved successful. At this period the patient should
should be supported by appropriate nourishment,
such as arrow root, tapioca, sago, panada, chicken
soup and the occasional indulgence of a little wine
whisky.

Such however is the intractable nature of croton and
such the rapidity of its march, that we shall often
find our best hopes disappointed, the system sick
and the child eventually die, even under the best
directed and well advised practice.

As a dernier resource, trachotomy has been
advised: that it may prove useful in cases where
spasmodic, is presumable, but it cannot perfectly
give relief in cases purely inflammatory.

